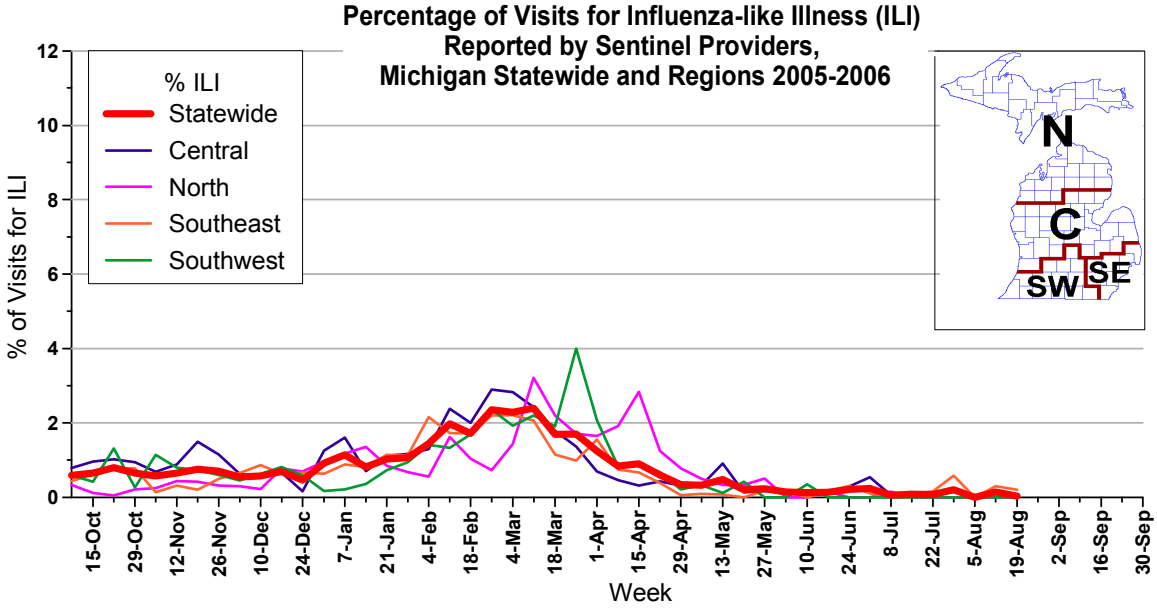
# MIFluFocus
## August 25, 2006
## Weekly Influenza Surveillance and Avian Influenza Update

**Michigan Disease Surveillance System:** No recent aberrations have been detected in flu-like illness activity. It continues to remain very low and is comparable to last year at this time.

**Emergency Department Surveillance:** No recent aberrations have been detected in the level of either respiratory or constitutional emergency department visits. Both indicators remain low and are comparable to last year at this time.

**Over-the-Counter Product Surveillance:** A general increasing trend has been seen in sales of both antifever medications and thermometers. Antifever medication sales are now higher than at any point during peak flu season. Thermometer sales are now at similar level to those reported during peak flu season. Both indicators will continue to be monitored. No recent aberrations have been detected in the level of the remaining indicators, all of which remain very low and are comparable to last year at this time.

**Sentinel Surveillance** (**as of August 25, 2006**): During the week ending August 19, 2006, the proportion of visits due to influenza-like illness (ILI) decreased slightly from last week to 0.0% of all visits. Low levels of ILI activity were reported in all regions; the percentage of visits due to ILI by region was 0.0%, Central; 0.0%, North; 0.2%, Southeast; and 0.0%, Southwest.




As part of pandemic influenza preparedness, CDC and MDCH highly encourage and recommend year-round participation from all sentinel providers. Data that we obtain over the summer will help us to establish a baseline level of activity during months that are not typically associated with high levels of influenza activity. New practices are encouraged to join influenza sentinel surveillance program today! Contact Rachel Potter at 517-335-9710 or potterr1@michigan.gov for more information.

**Laboratory Surveillance (as of August 25, 2006):** No reports were received for the past week. The MDCH laboratory has confirmed 138 influenza cases in Michigan over the 2005-2006 season, of which 132 were influenza A (H3N2) and 6 were influenza B.

**Influenza-Associated Pediatric Mortality (as of August 25, 2006):** There were no new reports this week. For the 2005-2006 influenza season, Michigan had one confirmed influenza-associated pediatric death from region 2S. During October 2, 2005 – May 20, 2006, CDC received reports of 35 influenza-associated pediatric deaths, 33 of which occurred during the current influenza season.

***Reminder: The CDC has asked all states to continue to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child less than 18 years of age resulting from a clinically compatible illness confirmed to be influenza by an appropriate laboratory or rapid diagnostic test, but also unexplained death with evidence of an infectious process in a child. Refer to http://www.michigan.gov/documents/fluletter_107562_7.pdf for the complete protocol. It is important to immediately call or fax information to MDCH to ensure that appropriate clinical specimens can be obtained.

**Congregate Settings Outbreaks (as of August 25, 2006):** No reports were received during the past reporting week. A total of two congregate setting outbreaks have been reported to MDCH this season; one in Southwest Michigan in late February and one in Southeast Michigan in late March. Both outbreaks were MDCH laboratory confirmed as due to influenza A (H3N2).

**The 2005-2006 Michigan Influenza Seasonal Summary is now available at http://www.michigan.gov/flu under "Seasonal Influenza – MDCH Laboratory Influenza Testing and Surveillance."** Overall, this season was milder than the previous year, peaked in early to mid-March and was comprised mainly of influenza A infections.

**International (WHO, as of August 17, 2006):** During weeks 27–30, with the exception of New Zealand, where high levels of influenza activity were reported, overall influenza activity in both northern and southern hemispheres was low. In Argentina, localized influenza A(H1N1) activity was reported during weeks 29–30. Localized influenza A activity was reported in Australia during weeks 27–30. Chile reported localized influenza A(H3N2) and A(H1N1) activity during weeks 27–29. In the Hong Kong Special Administrative Region of China, influenza A(H1N1) virus has been circulating since the first week of 2006 together with B virus. Since week 11, A(H1N1) virus has predominated. Activity started to increase during week 23 and remained at a high level until week 30. New Zealand reported an increase in A(H3N2) activity during week 23. Since week 25, activity was reported as regional until week 30, when widespread A(H3N2) activity was reported. Localized influenza A(H1N1) activity has been reported in Thailand since week 26. During weeks 27–30, low influenza activity was reported in Brazil (A and B), Canada (A and B), Islamic Republic of Iran (B), Japan (H3 and B), Madagascar (H3), Mexico (A), New Caledonia (H3), South Africa (H3, A and B) and Sri Lanka (H1 and B). Philippines, Portugal and Slovenia reported no influenza activity.

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Weekly influenza activity reporting to the CDC is finished for the 2005-2006 influenza season.

**End of Seasonal Report**

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## Avian Influenza Activity

**WHO Pandemic Phase:** Phase 3 - Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact.

**International Update (WHO, August 21 and 23):** The Ministry of Health in Indonesia has confirmed the country's 59th case of human infection with the H5N1 avian influenza virus. The case occurred in a 35-year-old woman from the remote subdistrict of Cikelet, West Java Province. She was hospitalized with severe respiratory disease on August 17th and died shortly after admission. She is the third confirmed case from this sub-district to be reported in the past week.

Preliminary findings from the Cikelet investigation: A team of experts is presently in the Cikelet subdistrict investigating the outbreak and monitoring for further cases. Three hamlets are the focus of investigation. The Cikelet subdistrict consists of around 20 isolated hamlets, each with a population of around 200 to 400 persons, many living in large extended families. The hamlets sit in a basin surrounded by steep mountains with rocky winding paths best accessed by foot or horseback. In this area, mortality from endemic diseases, especially malaria, is common, access to health care is poor, and medical records of deaths are scanty or non-existent. Prior to late June 2006, no mass die-offs of poultry are known to have occurred in the area. At that time, live chickens were purchased from an outside market in preparation for

a religious feast and were integrated into local flocks. Shortly thereafter, chickens began dying in large numbers in an outbreak that continued throughout July and the first week of August, gradually spreading from one hamlet to another. As the population had no experience with this disease, high-risk behaviors commonly occurred during the disposal of carcasses or the preparation of sick or dead birds for consumption. These exposures are, at present, thought to be the source of infection for most confirmed or suspected cases.

Deaths from respiratory illness are known to have occurred in late July and early August, but no samples were taken and medical records are generally poor. Though some of these undiagnosed deaths occurred in family members of confirmed cases, the investigation has found no evidence of human-to-human transmission and no evidence that the virus is spreading more easily from birds to humans. The cooperation of residents is good, house-to-house surveillance for febrile illness is continuing, and specimens have been taken from symptomatic persons and sent for testing. The team is well-supplied with antiviral drugs, and these are being administered prophylactically to close contacts of cases and therapeutically to persons showing symptoms of influenza-like illness.

The Ministry of Health in Indonesia has confirmed the country's 60th case of human infection with the H5N1 avian influenza virus. The case is a 6-year-old female from Bekasi, West Java Province. She developed symptoms on August 6th and was hospitalized on August 11th. She remains hospitalized but is recovering. The source of her infection is currently under investigation. Of the 60 cases confirmed to date in Indonesia, 46 have been fatal.

**Dow Jones Newswire, August 19:** The Indonesian government said late Saturday it has responded to the emergence of new human cases of H5N1 avian influenza by culling poultry and distributing free doses of Roche Holding AG's (RHHBY) Tamiflu drug. Those measures are the Ministry of Health's response to the recent detection of nine suspected human cases of bird flu in West Java province, a statement issued by the official Indonesian National Committee for Avian Influenza Control and Pandemic Influenza Preparedness, or Komnas, said. "So far we have killed hundreds of birds and residents in affected birds are being given the anti-viral drug Tamiflu free of charge as a preventative measure," the statement said, quoting Komnas chief executive Bayu Krisnamurthi.

The statement said the Indonesian government has confirmed two human bird flu infections in West Java this month, including a nine-year-old girl who died of the illness and a seventeen-year-old who is recovering, but there is "no evidence" of human-to-human transmission. The epicenter of this latest human outbreak of bird flu is the West Java province village of Cikelet in Garut District, 150 kilometers southeast of the capital Jakarta. "The government is treating all patients in the area with similar symptoms as suspected (H5N1) cases until laboratory testing can be concluded," the statement said. This latest outbreak has heightened concerns that Indonesia is a weak link in global efforts to prevent a pandemic that could kill millions.

Bird flu is endemic in Indonesia's poultry stocks and is spilling over into the human population. Indonesia has recorded 45 human H5N1 fatalities out of 58 confirmed cases since July 2005, the world's highest death toll, World Health Organization data show. Analysts say Indonesia's efforts to reduce its mounting human H5N1 death toll are stalling due to a lack of donor funding needed for strategies including mass culls of infected poultry and vaccinations of virus-free birds. International donors have yet to contribute "a single cent" toward the $900 million the Indonesian government has budgeted to fight H5N1 over the next three years, Coordinating Minister for People's Welfare, Aburizal Bakrie, complained in June. Komnas and the World Bank will cosponsor an international donors conference in Jakarta Wednesday and Thursday aimed to jump-start actual funding for anti-bird flu measures in Indonesia.

**Thai News Agency (August 23):** Thailand's Public Health Ministry has introduced a state-of-the art bird flu mobile laboratory to be dispatched to the bird flu prone province of Phichit in the North. The ministry has developed bird flu mobile labs capable of giving lab test results within four hours. Public Health Minister Pinij Jarusombat on Wednesday inaugurated the mobile labs at the IMPACT Trade and Exhibition Centre in Muang Thong Thani in Nonthaburi Province on the outskirts of Bangkok. Installed with lab equipment designed by the Medical Sciences Department, the vehicle itself was modified from a ten-wheel truck and has its own electricity generating unit. The Bt15million vehicle will be on duty around

the clock. Its personnel can diagnose many diseases, including bird flu, the hand foot and mouth disease and dengue fever, the public health minister said. The first mobile lab will be stationed in the northern province of Phichit and the second is posted to the Medical Sciences Department in Bangkok. The ministry would build two additional mobile labs to be stationed in or dispatched to other regions as needed, he added. Dr. Paijit Warachit, Director-General of the Department of Medical Sciences, said that the existing mobile labs need additional support equipment from hospitals, as well as an outside electricity supply source; so they cannot be assigned to remote areas. The old mobile units required 6 to 7 hours to deliver laboratory test results, longer than the new labs. The department plans to extend the capacity of the new labs to diagnose other diseases such as the SARS, he said. Thailand has suffered 24 human cases of bird flu, including 16 fatalities, since the disease was first detected here in early 2004.

**WHO Vaccine Update, August 18:** The development of representative pre-pandemic H5N1 candidate vaccine viruses by the WHO Global Influenza Programme is being conducted as one step in an overall strategy for pandemic preparedness. This summary presents the current status of the development of new candidate H5N1 vaccine viruses and is intended to provide guidance for national authorities on the production of pre-pandemic vaccine. The H5N1 viruses chosen for development of pre-pandemic candidate vaccine viruses are representative of antigenically and genetically distinct groups of viruses that have infected humans primarily through contact with ill or dead H5N1-infected birds. These representative candidate H5N1 vaccine viruses have been prepared by reverse genetics and safety tested prior to release for production of pilot vaccine lots that may be used for experimental studies and for stockpiling by governments in advance of a possible H5N1 pandemic, should such a national policy exist. Companies are recommended to consult individual national authorities on the H5N1 strains to be used. Decisions should be based on the epidemiology of the circulating H5N1 viruses that are described below. Comparison of the previously developed (clade 1 rg A/Vietnam/1194/2004 and rg A/Vietnam 1203/2004) and new candidate H5N1 vaccine viruses and studies of cross-reactivity of these pre-pandemic vaccine viruses and their relationship to newly emerging H5N1 viruses are ongoing, and will be reported periodically by WHO.

The haemagglutinin (HA) sequences of the majority of H5N1 viruses circulating in avian species during the past 3 years separated into 2 distinct phylogenetic clades (genetic groups).3 Clade 1 viruses circulating in Cambodia, Thailand and Viet Nam were responsible for human infections in those countries during 2004 and 2005. Clade 2 viruses circulated in birds in China and Indonesia during 2003-2004 and subsequently during 2005-2006 spread westwards to the Middle East, Europe and Africa. This latter genetic group of viruses has been principally responsible for human infections during the later part of 2005 and 2006. Six sub-clades of clade 2 have been distinguished, 3 of which (subclades 1, 2 and 3) also differ in geographical distribution and have been largely responsible for human cases in Indonesia, in countries in the Middle East, Europe and Africa, and in China, respectively.

The antigenic relationships between the HAs of human isolates representative of clade 1 and 3 subclades of clade 2 were compared by haemagglutination inhibition (HI) tests using post-infection ferret antisera. Reciprocal cross-reactions in HI tests demonstrated antigenic similarity of HAs within the same genetic clade and distinguished representatives of different clades with the exception of viruses from the Karo cluster represented by A/Indonesia/CDC625/2006. Viruses from this family cluster were antigenically distinguishable from the majority of human isolates represented by A/Indonesia/5/2005 and A/Indonesia/CDC357/2006 (subclade 1), and appeared antigenically more closely related to H5N1 viruses in subclade 2.

Viruses representative of subclade 1 (A/Indonesia/5/2005) and subclade 2 (A/Bar headed goose/Qinghai/1A/2005, A/Whooper swan/Mongolia/244/2005 and A/turkey/Turkey/1/2005) were selected for the preparation of reverse genetics modified reassortant vaccine viruses using the laboratory reference strain A/PR8/34 as donor of the polymerase, nucleoprotein, matrix and non-structural protein genes. HI analysis confirmed that the reassortant candidate vaccine viruses were antigenically similar to the parent viruses and the majority of recent isolates within the same clade. On the basis of more recent data, a subclade 3 vaccine virus is also being prepared from A/Anhui/1/2005.

Pre-pandemic vaccines have been produced by manufacturers using clade 1 viruses (rg A/Vietnam/1194/2004 (NIBRG-14) and rg A/Vietman/1203/2004 (CDCRG-1 and SJRG-161052). Clinical trials have been conducted or are under way in several countries and stockpiling of clade 1 vaccines has

begun in some countries. Because it is not known if the next influenza pandemic will be caused by H5N1 viruses or which of the clades or subclades of H5N1 would be responsible, should one occur, clinical trials using clade 1 viruses should continue as an essential element in pandemic preparedness to maximize data available on priming, cross-reactivity and cross-protection by vaccine viruses from different clades and subclades.

On the basis of the geographical spread, the epidemiology, and the antigenic and genetic properties of the H5N1 viruses isolated from humans during the past 12 months, national authorities may recommend the use of one or more of the following H5N1 candidate vaccine viruses for pilot lot vaccine production and subsequent stockpiling of vaccines, should relevant national policies exist: An A/Indonesia/5/2005-like virus An A/Bar headed goose/Qinghai/1A/2005-like virus (6) An A/Anhui/1/2005-like virus (7).

**National Wild Bird Surveillance (Alaska Department of Fish and Game, August 11):** The ADF&G is capturing, marking and swabbing Midcontinent Lesser Sandhill Cranes at Creamer's Field Migratory Waterfowl Refuge in Fairbanks; 38 cranes have been samples so far. This effort is part of an ongoing marking project and habitat enhancement to hold cranes away from the Fairbanks International Airport. Over 700 samples have been taken from dabbling ducks on Minto Lakes in the Minto Flats State Game Refuge on August 1, along with 238 samples from dabbling ducks and scaup at the Lewis River Slough on the Susitna State Game Refuge on August 3.

The public can now view a Web site showing current information about wild bird sampling for early detection of highly pathogenic avian influenza (HPAI) in the United States: http://wildlifedisease.nbii.gov/ai/. Scientists are now using the newly developed database and Web application called HEDDS (HPAI Early Detection Data System) to share information on sample collection sites, bird species sampled, and test results. The database is available to agencies, organizations, and policymakers involved in avian influenza monitoring and response. Scientists will use the data to assess risk and refine monitoring strategies should HPAI be detected in the United States. Public access is more limited, but shows the states where samples have been collected and includes numbers of samples collected from each state.

HEDDS is a product of the federal government's NBII Wildlife Disease Information Node (WDIN) housed at the USGS National Wildlife Health Center. With financial support from the U.S. Fish and Wildlife Service, U.S. Geological Survey, and U.S. Department of Agriculture's Animal and Plant Health Inspection Service, and participation by State wildlife agencies, universities and nongovernmental organizations, the HEDDS Web site provides a current picture of where sampling has taken place and the results of testing. "HEDDS provides a critical comprehensive view of national sampling efforts at a time when the demand for this type of information is increasing, along with the growing interest in HPAI surveillance efforts in wild birds," said WDIN Project Leader Joshua Dein. Between April 1 and August 18, 2006, 9,590 samples from wild birds tested for avian influenza have been entered into HEDDS. Scientists have tested over 10,000 wild birds so far. No HPAI H5N1 has been detected to date. The Eurasian strain of H5N1 avian influenza virus has caused 141 human deaths elsewhere in the world, as well as the death of millions of domestic and wild birds. Low-pathogenicity strains of avian influenza are commonly found in waterfowl and shorebirds; such strains do not cause significant disease in wild birds or in people.

Sampling has begun in many of the lower 48 states and will continue as birds begin migrating south from their northern nesting grounds. Data from three of the wild bird surveillance plan's five strategies for early detection of HPAI are now viewable on HEDDS: sample numbers from (1) live wild birds tested, (2) subsistence hunter-killed birds, and (3) investigations of sick and dead wild birds. The other two strategies are: (4) surveillance of domestic birds as sentinel species; and (5) environmental sampling of water and wild bird droppings.

The National Biological Information Infrastructure (NBII) is a broad, collaborative program to provide increased access to data and information on the nation's biological resources. The NBII links diverse, high-quality biological databases, information products, and analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government organizations, and

private industry. A fact sheet with more detailed information about HEDDS is available at http://wildlifedisease.nbii.gov/ai/HEDDS_FactSheet.pdf

**Michigan Wild Bird Surveillance (USDA, August 14):** The U.S. Departments of Agriculture and Interior today announced that routine surveillance has indicated the presence of H5 and N1 avian influenza subtypes in samples from two wild mute swans in Michigan, but testing has ruled out the possibility of this being the highly pathogenic H5N1 strain that has spread through birds in Asia, Europe and Africa. Test results thus far indicate this is low pathogenicity avian influenza, which poses no threat to human health. The swans were sampled as part of the expanded avian influenza surveillance program. They were showing no signs of sickness, which suggests that this is low pathogenicity avian influenza. Additionally, genetic analysis of the virus conducted at USDA's National Veterinary Services laboratories (NVSL) in Ames, Iowa, suggests that it is similar to a low pathogenicity strain that has been found in North America. It is possible that these birds were not infected with an H5N1 strain, but instead with two separate avian influenza viruses, one containing H5 and the other containing N1. The confirmatory testing underway at NVSL will clarify whether one or more strains of the virus are present, the specific subtype, as well as pathogenicity. These results are expected within two weeks and will be made public when completed. It should be noted that wild birds are known to harbor many influenza viruses, and the finding of one or more of these viruses during routine testing is not unusual.

The swans were sampled August 8 at the Mouillee state game area located on the coast of Lake Erie in Monroe County, Michigan. The samples were taken by USDA Animal and Plant Health Inspection Service personnel as part of an expanded wild bird monitoring program. The Departments of Agriculture and Interior are working collaboratively with States to sample wild birds throughout the United States for the presence of highly pathogenic avian influenza. Initial screening tests on the swan samples were conducted by Michigan State University's Diagnostic Center for Population and Animal Health--part of USDA's National Animal Health Laboratory Network. These tests indicated the presence of an H5 avian influenza virus. Confirmatory testing at NVSL confirmed the H5 and the N1. This testing also suggests, but has not yet confirmed, that this is low pathogenicity avian influenza.

Low pathogenicity avian influenza (LPAI) commonly occurs in wild birds, where it typically causes only minor symptoms or no noticeable symptoms. These strains of the virus are not a human health concern. This includes LPAI H5N1, commonly referred to as the North American H5N1. This strain of low pathogenicity avian influenza is very different from the more severe HPAI H5N1 circulating overseas, which is commonly referred to as the Asian H5N1. Evidence of LPAI H5N1 has been found on two occasions in wild birds in the United States. In 1975 and 1986, it was detected in wild ducks. These detections occurred as part of routine sampling. LPAI H5N1 has also been detected in Canada, most recently in 2005. For more information, visit http://www.usda.gov/birdflu or http://www.avianflu.gov.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

**CDC (August 23):** The CDC has just released an updated document titled "Interim Guidance for States Conducting Avian Mortality Surveillance for West Nile Virus (WNV) and/or Highly Pathogenic H5N1 Avian Influenza Virus." This information is available at http://www.cdc.gov/flu/avian/doh/aviansurveillance.htm.

**Michigan Pandemic Planning (July 31, 2006):** The first quarterly Pandemic Influenza Planning Update from the Michigan Department of Community Health is now available on the internet at http://www.michigan.gov/documents/PandemicPlanningUpdate_I_168512_7.pdf. It contains a summary of MDCH pandemic influenza planning activities, as well as information on influenza surveillance and the activities of other state and federal agencies.

**Table 1. H5N1 Influenza in Poultry (Outbreaks up to August 16, 2006)**
(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 8/21/2006)

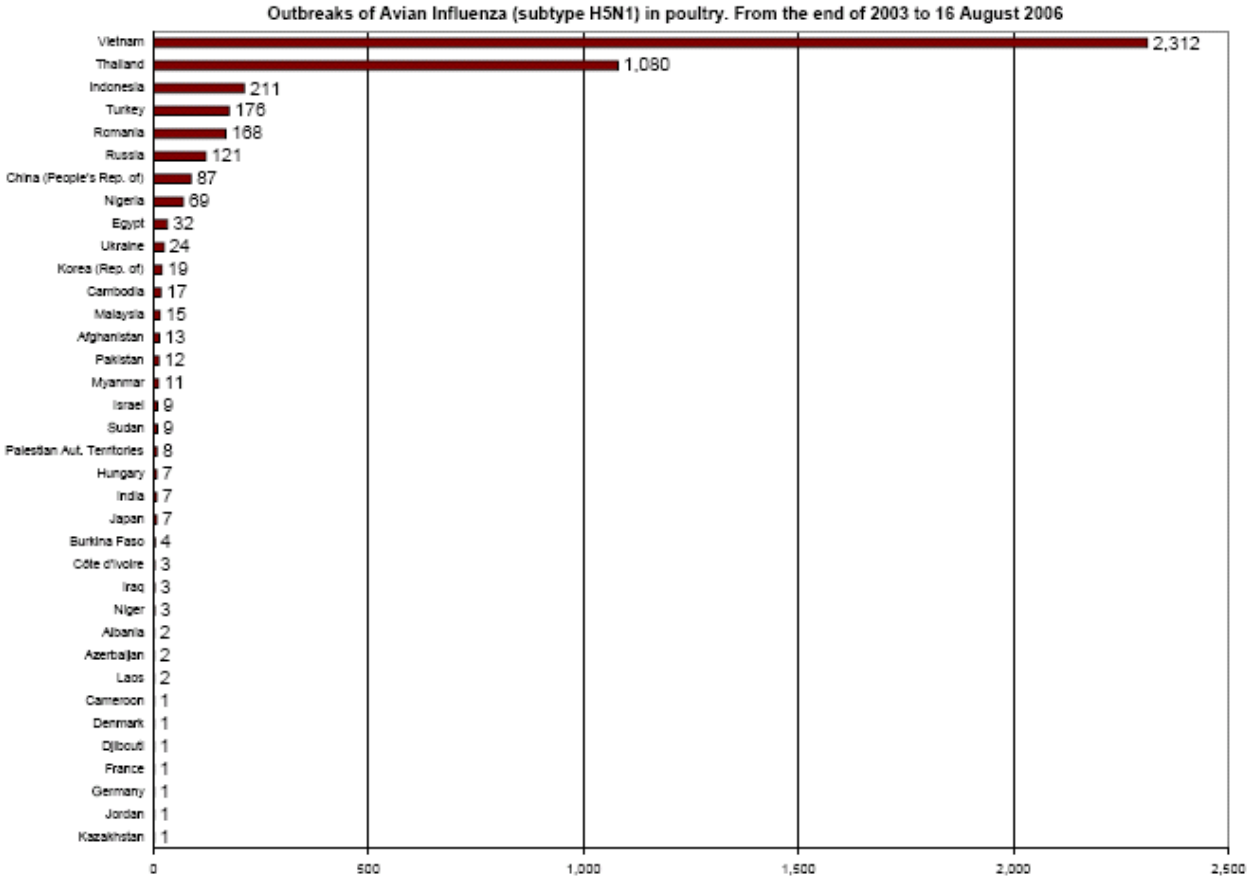


**Table 2. H5N1 Influenza in Humans (Cases up to August 23, 2006)**
(http://www.who.int/entity/csr/disease/avian_influenza/country/cases_table_2006_06_06/en/index.html Downloaded 8/23/2006)
Cumulative number of confirmed human cases of Avian Influenza A(H5N1) reported to WHO. The total number of cases includes number of deaths. WHO only reports laboratory-confirmed cases.

| Country | 2003 | | 2004 | | 2005 | | 2006 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | cases | deaths | cases | deaths | cases | deaths | cases | deaths | cases | deaths |
| Azerbaijan | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5 | 8 | 5 |
| Cambodia | 0 | 0 | 0 | 0 | 4 | 4 | 2 | 2 | 6 | 6 |
| China | 1 | 1 | 0 | 0 | 8 | 5 | 12 | 8 | 21 | 14 |
| Djibouti | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| Egypt | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 6 | 14 | 6 |
| Indonesia | 0 | 0 | 0 | 0 | 17 | 11 | 43 | 35 | 60 | 46 |
| Iraq | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| Thailand | 0 | 0 | 17 | 12 | 5 | 2 | 2 | 2 | 24 | 16 |
| Turkey | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 12 | 4 |
| Viet Nam | 3 | 3 | 29 | 20 | 61 | 19 | 0 | 0 | 93 | 42 |
| Total | 4 | 4 | 46 | 32 | 95 | 41 | 96 | 64 | 241 | 141 |